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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,999	04/04/2001	Mary Bliss	E-1596 CIP	3583

7590 06/19/2003

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[REDACTED] EXAMINER

LEE, HWA S

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2877

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/826,999	BLISS ET AL.	
Examiner	Art Unit		
Andrew H. Lee	2877		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 April 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u>	6) <input type="checkbox"/> Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 7, 8, 10-13, 17,19-21, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krivoshlykov (6,016,197).

Krivoshlykov shows a spectrum analyzer comprising:

providing a first non-scanning electromagnetic energy source and a second non-scanning electromagnetic energy source with a phase relationship and a known distance;
interfering electromagnetic energy output from the first and second electromagnetic energy sources, thereby producing an interference pattern in the spatial domain;
transforming the interference pattern into a spectral content.

Krivoshlykov fails to show the step of measuring the interference pattern, however, Krivoshlykov optically transforms the interference pattern into spectral information rather than a computational method of measuring the interference pattern and then transforming the measured data into spectral information. Official Notice is taken that measuring an interference pattern and then performing a transform of an interference pattern into a spectral domain is old and well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. At the time of the

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invention, one of ordinary skill in the art would have modified Krivoshlykov so that the interference pattern is transformed by a computational method rather than the optical method used by Krivoshlykov. Krivoshlykov discusses in Column 3, lines 13+, compares a prior art method of using a computer for numerical processing of the signal and the direct optical processing (Fourier transform). One of ordinary skill would have recognized that a computational method is cheaper than the direct optical process by use of a Fourier transform lens (7). Furthermore, one of ordinary skill in the art would have recognized that both methods of transforming the interference pattern into a spectral content are functional equivalents and that either method would work to get the spectral information. Therefore, one of ordinary skill in the art would have modified Krivoshlykov to measure the interference pattern and then perform the transform.

As to claims 2 and 13, the two ends of the Y-junction are actual sources.

As to claims 32, 7, 19, and 34 the Y-junction (3) alters (splits) the light and is used as the first and second light sources.

As to claims 8, 10, and 20, Krivoshlykov shows altered light from a source or sensor (1). Official Notice is taken that the use of Bragg gratings as a sensor are old and well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. One of ordinary skill in the art would have recognized that Bragg gratings are used as sensors and would have recognized that the spectrum analyzer of Krivoshlykov could be used to measure information from the Bragg

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grating sensors and thus would have been motivated to use Bragg grating sensors with Krivoshlykov.

As to claims 33 and 21, Official Notice is taken that optoelectronic transducers to measure light are old and well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. One of ordinary skill in the art would have used optoelectronic transducers to detect the light since it is well known in the art to use optoelectronic transducers to measure interference patterns. Furthermore, one of ordinary skill in the art would have recognized that the sample (disperser) could be placed between the light and the optoelectronic transducer and it is notoriously well known in the art to do so.

As to claim 17, the space between the sources and the detector is solid.

Claim Rejections - 35 USC § 103

3. Claims 3-5 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krivoshlykov as applied to claims 1 and 11 above, and further in view of Medecki (5,835,217).

Krivoshlykov fails to show a second electromagnetic source as a virtual electromagnetic source. Medecki shows an interferometer in Figure 6 comprising an actual electromagnetic source (2,4, 114), a virtual electromagnetic source (112) provided by a planar reflective surface (102). Also please see Figure 5, showing an actual source (4) and a virtual source (90).

At the time of the invention, one of ordinary skill in the art would have modified the beamsplitter of Krivoshlykov with the beamsplitting means of Medecki. Medecki suggests the

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use of a virtual light source from an actual light source can be used for splitting the light beam and creating two light sources and that the various ways suggested by Medecki are functional equivalents and that the various ways of creating the two light sources can be chosen by the skilled artisan as a matter of preference. This would have suggested one of ordinary skill to use beamsplitting means of Medecki to split the beams of Krivoshlykov to create the two light sources.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the PTO Fax Center located in

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CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center number is (703)308-7722 or 308-7724.

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

- a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and
- b) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew H. Lee whose telephone number is (703) 305-0538.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (703) 308-0956.

**Andrew Lee
Patent Examiner
Art Unit 2877
June 09, 2003/ahl**

**Frank Font
Supervisory Patent Examiner
Art Unit 2877**

DETAILED ACTION

Claim Objections

1. Claim 1-9 are objected to because of the following informalities: The altering use of "electromagnetic energy" and "light" is unnecessarily confusing and in clause (c) of claim 4, "virtual second fixed light source" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (4,976,542).

Smith shows a digital array scanned interferometer comprising the steps of:

- (a) providing a first fixed electromagnetic energy source (58) and a second fixed electromagnetic energy source (50), said electromagnetic energy sources having a phase relationship, wherein said second fixed electromagnetic energy source is virtual provided by a planar reflective surface (52);
- (b) interfering electromagnetic energy output from said first and second fixed electromagnetic energy sources, thereby producing an interference pattern in the spatial domain;
- (c) measuring the interference pattern; and
- (d) transforming the interference pattern into a spectral content.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 1 above, further in view of Krivoshlykov (6,016,197).

Smith shows all the limitations except for the receiving of light into an optical fiber.

Krivoshlykov shows a spectrum analyzer comprising:

providing light in an optical fiber that has been altered from sensor (1), and using said altered light as said first fixed electromagnetic energy source and said virtual electromagnetic energy source.

At the time of the invention, one of ordinary skill in the art would have modified Smith to use optical fibers as Krivoshlykov uses in order to make the spectrometer smaller and easier to align the optical components as is well known in the art the advantages of optical fibers over bulk optical elements.

As for claims 5 and 15, both Smith and Krivoshlykov alter said light by splitting said light.

As for claims 6-8, 16 and 17, Krivoshlykov teaches that light is altered by sensor (1) and it is notoriously well known in the art that bragg gratings are used as optical sensors and that light source is used to send light to the sensor (test material) and then to the detector.

Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center numbers are 703-872-9318 for regular communications and 703-872-9319 for After Final communications

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

- a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and
- b) Should be unsigned by the attorney or agent.

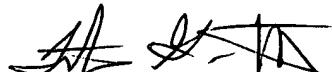
This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa Lee whose telephone number is (703) 305-0538. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881.



Andrew Lee
Patent Examiner
Art Unit 2877
June 11, 2003/ahl



Frank Font
Supervisory Patent Examiner
Art Unit 2877